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A slight error on page 12, due to a misunderstanding, should be corrected. Mr. F. A. Walpole had no connection with the color project of the American Mycological Society, the preparation of which was delegated to the late Dr. L. M. Underwood, Dr. W. A. Murrill, and the writer. Mr. Walpole died before the committee was appointed, and the project was abandoned after two years' work by the committee in favor of Dr. Ridgway's work, which had not previously come to their notice.

P. L. RICKER.

FAULL'S CYTOLOGY OF THE LABOULBENIALES

Faull[2] has recently published an account of his cytological studies upon two species of the Laboulbeniaceae found on the elytra and on the free tip of the abdomen of the common whirligig beetle. The species, *Laboulbenia chaetophora* and *L. Gyrinidarum,* are closely related forms and are not easily distinguished in the young stages. Both species are apogamous, nothing resembling antheridia being found, although a much-branched multicellular trichogyne is present in each species. Thaxter's account of the general morphology of species of the genus are confirmed in a number of points.

The methods in ordinary use for fixing and imbedding fungi were employed. The septa between the daughters of the same mother cell are single pitted, and a continuous protoplasmic tract extends through the receptacle to the tips of the appendages. No broad protoplasmic bridges, however, are to be found between the cells of the receptacle. The protoplasm which dips into the opposite lying pits is in reality separated by the thin middle lamella which is perforated by one or more minute pores. Only very fine strands, plasmodesmen, connect the cells. The septa in the appendages are apparently coarsely perforated, so that the cytoplasmic fibrils extend out from the pits in the cells of the receptacle, and occasionally similar strands are seen leading out from the nuclei. Their function has not been determined except that in disintegrating cells they are very persistent elements of the cytoplasm.

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[2] Cytology of the Laboulbeniales, Ann. Bot. 25: 649–654. Jl. 1911: The cytology of *Laboulbenia chaetophora* and *L. Gyrinidarum.* Ann. Bot. 26: 325–355.

The nucleus of the carpogenic cell is succeeded by two nuclei, after which the nucleus of the trichophoric cell migrates down close to the carpogonium and undergoes a homoeotypic division. About the same time the septum between the two cells disappears, leaving a long four-nucleated cell. A restored trichophoric cell is then cut off carrying one of the trichophoric daughter nuclei; an inferior supporting cell with one of the two nuclei which succeeded the carpogenic nucleus is cut off below. Four nuclei now appear in place of the two remaining centrally-placed nuclei, and a superior binucleate supporting cell is formed above, leaving a binucleated ascogonium below. The ascogonium may become an ascogenic cell directly, or a second inferior supporting cell may be cut off from it, and a second ascogenic cell may be formed, each cell being binucleate. At this important point the exact line of descent of the nuclei to be found in this series of binucleate cells was not determined. Whether the nuclei in the ascogenic cells are sister nuclei, a few divisions removed from the nucleus of the carpogonium, or whether they are non-sister nuclei, the great-granddaughters of the trichophoric and carpogenic cells respectively, is not stated. The author would seem to infer that the latter is the case by the statement that the nucleus of the trichophoric cell "joins forces with that of the carpogonium." The nuclei in the ascogenic cell dividė conjugately, non-sister nuclei passing up into the ascus which buds off directly from the ascogenic cell. Their fusion follows. Four chromosomes appear at the conjugate divisions in the ascogenic cells and the same number is to be found at each division in the ascus; reduction occurs in synapsis of the first division. A well-marked centrosome is found upon the nuclear membrane. The behavior of the centrosome in nuclear division, and its connection with the chromatin threads seems to be very similar to what Harper describes for the Erysiphaceae. Faull still maintains, however, that the astral rays take no part as such in the delimitation of the spores, but agrees that the centrosome is the center of activity to the extent that the spores are delimited by the differentiation of a limiting layer of protoplasm that begins adjacent to the centrosome and continues progressively.

Faull has procured additional cytological evidence for placing the Laboulbeniales among the true Ascomycetes. It should be noted, however, that the method of ascogonous formation here described is entirely unlike anything known among the ascomycetes. Although he has heretofore been inclined to view the ascus as having been evolved from the zoosporangium of the Oomycetes, he now admits that there may be some grounds for relating the Ascomycetes to the Florideae. "Such features as a uninucleate antheridium, the possibility of proliferation of spermatia from the same antheridium, and the exogenous types of spermatium organization suggest similar phenomena in the rusts, many Ascomycetes, and in the Florideae."

B. O. DODGE.

MAIRE'S REMARKS ON SOME HYPOCREACEAE

Under the title "Remarques sur quelques Hypocréacées"[3] R. Maire discusses a number of species belonging to the genera *Pyxidiophora, Peckiella, Hypomyces,* and *Nectriopsis,* the last being a new genus. In this paper a number of data are given which add to our knowledge of the North American Hypocreales.

In the "Hypocreales of North America"[4] the writer made *Hypomyces boletinus* Peck a synonym of *Hypomyces chrysospermus* (Bull.) Tul. with a note that the spores in the North American specimens examined were smaller than usually indicated for European specimens. On this difference Maire retains the American form as a variety of the European. At the time this note was made it was the opinion of the writer that the difference in size of the spores was due to immaturity of the plants examined. It still seems likely that this apparent difference would fade out if a careful comparison could be made of a sufficient number of plants from both America and Europe. The species is common on *Boletus* but the conidial phase is more common than the perfect and is identical in the European and

[3] Ann. Myc. 9: 315–326. 1911.

[4] MYCOLOGIA 2: 76. 1910.